The Canadian Entomologist.

Vol. XL. LONDON, OCTOBER, 1908. No. 10.

FOSSIL OSMYLIDÆ (NEUROPTERA) IN AMERICA.

BY T. D. A. COCKERELL, BOULDER, COLORADO.

The Hemerobiidæ, as understood by most authors, are divided by Handlinsch into several families : Dilaridæ, Osmylidæ, Polystoechotidæ, Sisyridæ, Nymphesidæ, and Hemerobiidæ. Of these, the Hemerobiidæ proper are abundantly represented in the North American fauna ; while (according to Banks, as shown by his recent Catalogue) we have two species of *Polystoechotes*, one each of *Sisyra* and *Climacia* (Sisyridæ), and one of *Dilar*. The Osmylidæ are not represented. In the Miocene shales of Florissant we find instead one *Polystoechotes*, two Osmylidæ, and no Hemerobiidæ, Sisyridæ or Dilaridæ. Probably not much importance should be attached to the apparent absence of several groups, but the existence of Osmylidæ, an Old World group, is significant, and in harmony with other facts, such as the occurrence of a species of Nemopteridæ in the shales.

Scudder described one of the Florissant Osmylids as *Osmylus requietus*. He prefaced his account (Tertiary Insects, p. 162) with the following remarks : The species we have placed here agrees somewhat closely with the species from amber, *Osm. pictus*, referred by Hager to this genus, but differs from it in its lack of any diverse colouring in the wings, as well as in some minor points of the neuration, as in the distance of the outer series of gradate veinlets from the outer border of the wing, their regular connection with one of the basal branches of the radius, the regularity of the inner series of gradate veinlets, as well as the structure of the cubital region. The two Tertiary species, however, agree together, and disagree with the living types in the simple character of the costal nervules, the much smaller number of sectors, and the character of the basal half of the wing, where the sectorial interspaces are regular and broken by few and irregularly scattered cross-veins, instead of being so numerously supplied as to break up the field into an almost uniform and minute reticulation. The two fossil species would therefore appear to form a section apart.

I found *Osmylus requietus*, Scudd., in the shale at Station 13. The specimen agreed with Scudder's type, except that it was a little smaller, the wings 14 mm. long instead of over 15. The insect differs conspicuously from typical *Osmylus* in the characters mentioned by Scudder, and may, I think, form the basis of a new genus *Osmylidia*. Whether the species from Baltic amber should be considered strictly congeneric, I will not venture to decide. In many of its characters this genus is closely allied to the very much older *Nymphites Craneri*, Haase, from the lithographic stone of Bavaria; indeed, it may fairly be said that *Osmylidia* is intermediate between *Nymphites* of the Jurassic, and *Osmylus* of the present day.

Osmylidia requieta (Scudd.) is, however, not the only Osmylid fossil at Florissant. At Station BB, this year, my wife found a much larger species, represented by a wing, of which enough is preserved to show the generic characters. This wing is about 25 mm. long, with dark veins, and dark spots very much like those of the living *Osmylus chrysops*. Toward the apex, the costal region is irregularly and diffusely maculated; in the middle region of the wing there are two small round spots, the first about 6, the second about 15 mm. from the base; toward the hind margin, 10 mm. from the base, is a rather larger spot. All of these spots correspond with those existing in *O. chrysops* (anterior wing). As regards the venation, many of the costal nervules are forked, exactly as in *O. chrysops;* the cross-nervures in the region of the media are numerous, as in *O. chrysops;* and, in short, the insect is a perfectly typical *Osmylus*, closely related to the living species. The cross-nervures between the radius and radial sector are most of them heavily clouded; the oblique branches of the radial sector leave at approximately regular intervals; the costal area is perhaps not quite so full as in *O. chrysops*. This insect, which proves that genuine *Osmylus* once inhabited the Rocky Mountains, may be termed *Osmylus Columbianus*, n. sp. I take this opportunity to add notes on two other Neuroptera.

(1) *Hemerobius moestus*, Banks, 1897 (not of Hagen, 1854, a fossil species), must be called *H. bistrigatus*, Currie, 1904.

(2) *Megaraphidia*, Ckll. (fossil at Florissant). The characters of this genus are approached by the living *Raphidia rhodopica*, Klapálek, Trans. Ent. Soc. Lond., 1894. It is possible that *Megaraphidia* should be reduced to a subgenus.